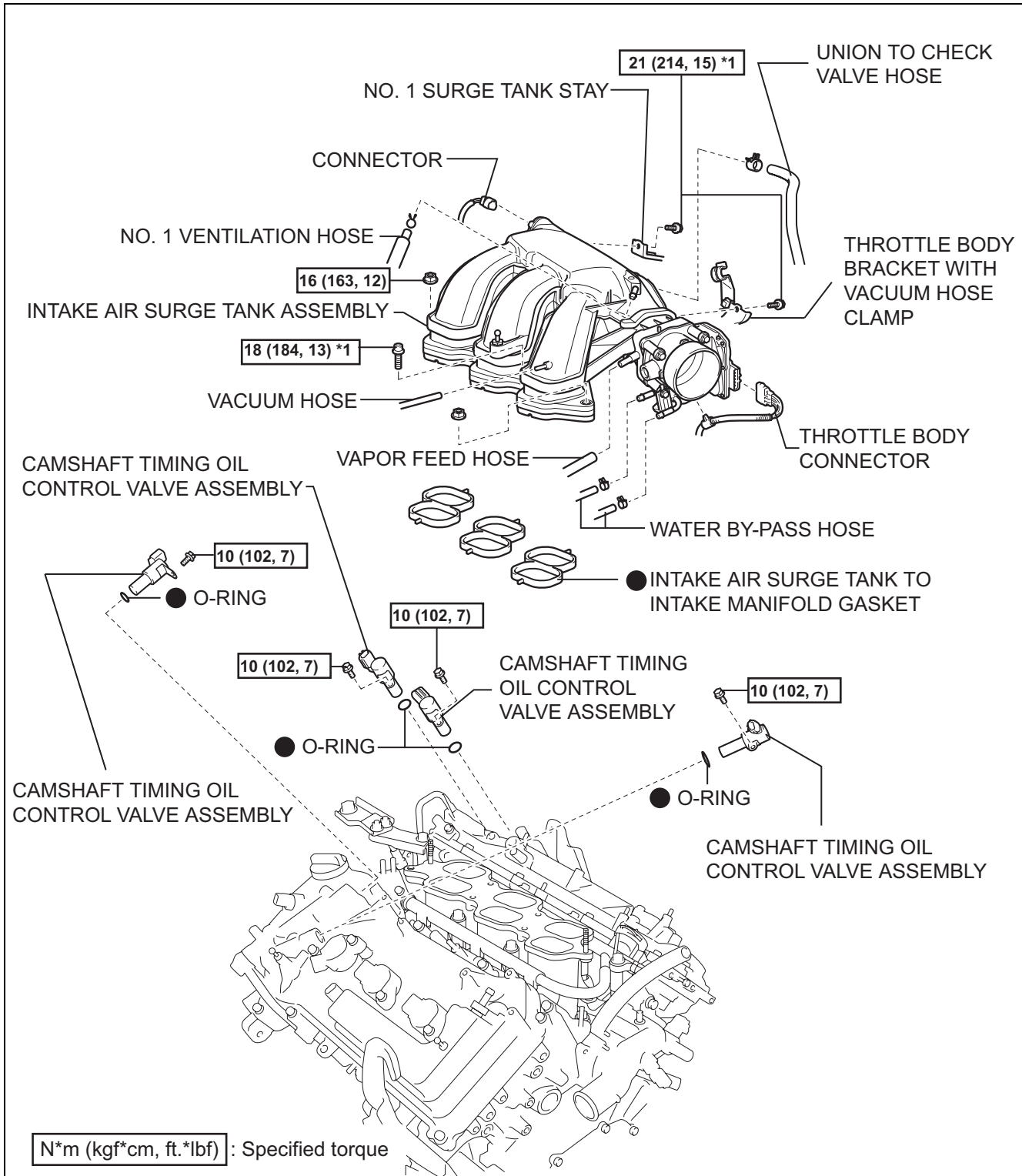
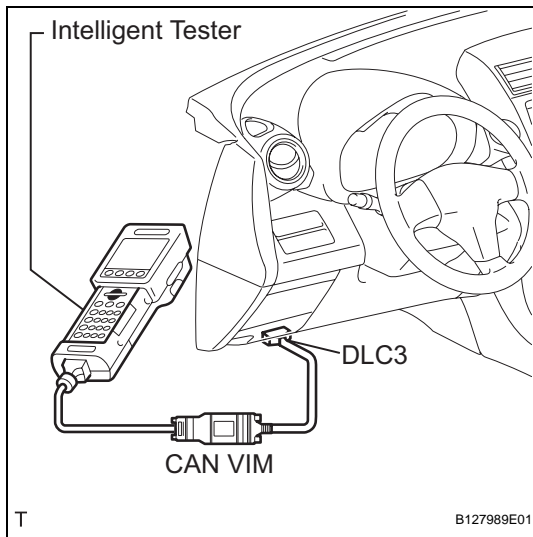


# CAMSHAFT TIMING OIL CONTROL VALVE ASSEMBLY

## COMPONENTS





## ON-VEHICLE INSPECTION

### 1. CHECK CAMSHAFT TIMING OIL CONTROL VALVE ASSEMBLY

- (a) Check the operation.
- (1) Connect the intelligent tester to the DLC3.
  - (2) Turn the ignition switch ON.
  - (3) Turn the intelligent tester main switch ON.
  - (4) Start and warm up the engine.
  - (5) Select the menu items: DIAGNOSIS / ENHANCED OBD II / ACTIVE TEST / VVT CTRL B1.
  - (6) Operate the oil control valve using the intelligent tester, and then check the engine speed.

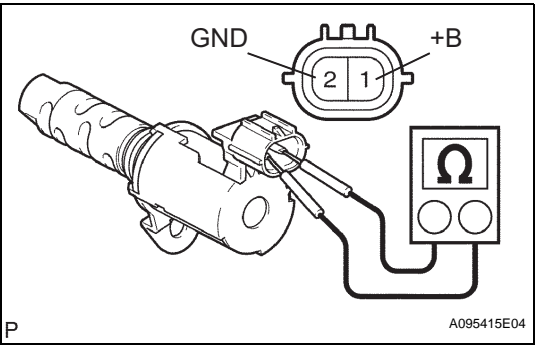
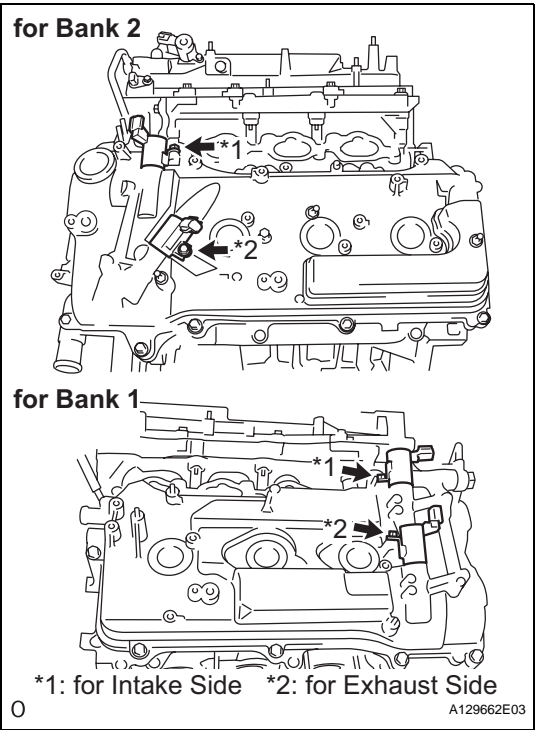
#### Standard condition

Condition	Specified Condition
Oil control valve is OFF	Normal engine speed
Oil control valve is ON	Rough idling or engine stalls

If the operation is not as specified, check the oil control valve, wire harness and ECM.

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
- CAUTION:  
Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to prevent airbag and seat belt pretensioner activation.
2. REMOVE ENGINE ASSEMBLY
- (a) Remove the engine (see page EM-21).
3. REMOVE INTAKE AIR SURGE TANK ASSEMBLY
- (See page EM-27)
4. REMOVE CAMSHAFT TIMING OIL CONTROL VALVE ASSEMBLY
- (a) Disconnect the 4 oil control valve connectors.
- (b) Remove the 4 bolts and 4 oil control valves.
- (c) Remove the O-ring from each oil control valve.

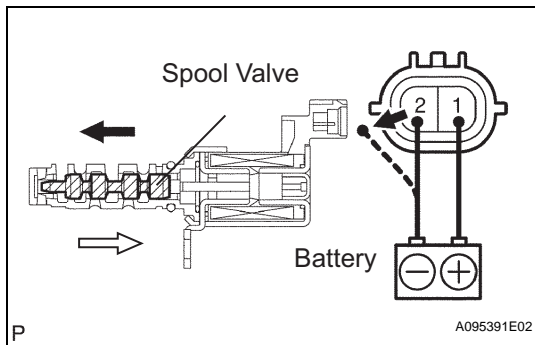


INSPECTION

1. INSPECT CAMSHAFT TIMING OIL CONTROL VALVE ASSEMBLY
- (a) Measure the resistance of the oil control valve.
- Standard resistance

Tester Connection	Specified Condition
1 (+B) - 2 (GND)	6.9 to 7.9 Ω at 20°C (68°F)

If the result is not as specified, replace the oil control valve assembly.



(b) Check the operation.

- (1) Connect the battery's positive (+) lead to terminal 1 and negative (-) lead to terminal 2, and check the movement of the valve.

**OK**

Condition	Specified Condition
Battery positive (+) voltage is applied	Valve moves in black arrow direction shown in illustration
Battery positive (+) voltage is cut off	Valve moves in white arrow direction shown in illustration

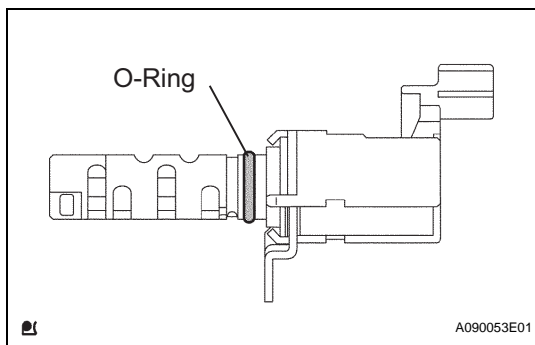
#### NOTICE:

**Check that the spool valve is not stuck.**

#### HINT:

The spool valve may not return if foreign objects are caught in it. This may cause subtle pressure leaks to the advance side, and a DTC may be set.

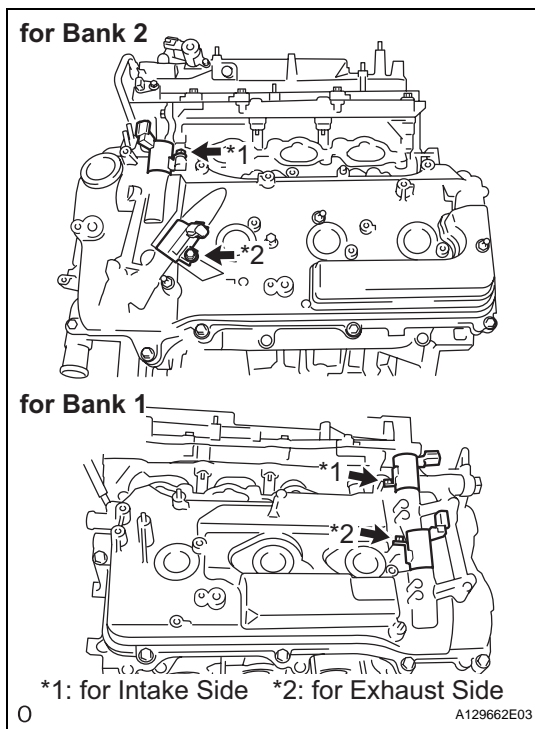
**ES**



## INSTALLATION

### 1. INSTALL CAMSHAFT TIMING OIL CONTROL VALVE ASSEMBLY

- (a) Apply a light coat of engine oil to new 4 O-rings of the oil control valves.
- (b) Install the O-rings to the 4 oil control valves.



- (c) Install the 4 oil control valves with the 4 bolts.

**Torque: 9.0 N\*m (92 kgf\*cm, 80 in.\*lbf)**

#### NOTICE:

**Make sure that the O-ring is not cracked or jammed.**

- (d) Connect the 4 oil control valve connectors.

### 2. INSTALL INTAKE AIR SURGE TANK ASSEMBLY (See page [EM-34](#))

### 3. INSTALL ENGINE ASSEMBLY

- (a) Install the engine (see page [EM-31](#)).

### 4. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

### 5. CHECK FOR ENGINE OIL LEAKS

- (a) Start the engine, and check that there are no oil leaks.